



Enabling Innovation Through Advanced e-Infrastructure

**ITU Regional Development Forum for Arab States (RDF-ARB):
ICT 4 Sustainable Development**

Rabat – Morocco, 28-29 March 2016

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Co-Managing Director, ASREN,
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ASREN 
Arab States Research and Education Network

e-AGE 2015
5th International Platform on Integrating
Arab e-Infrastructure In a Global Environment
Marrakeck, Morroco, 10-11 December, 2015

“Revealing and Harvesting Knowledge”



ITU was there
Thanks to
Mr. Ebrahim El Haddad

What are Research & Education Networks?

- Research and education networks are **dedicated** networks connecting the Universities, Schools, Research Centers, Hospitals, Museums and any other institution that may have research and education activities.
- National Research and Education Networks (**NRENs**) are established to provide connectivity and communications services for the research and education communities at the national level
- Regional Research and Education Networks (**RRENs**) are connecting the NRENs to provide connectivity and services to researchers and educators across the borders.

Main Drivers for Research Networks

- **Technological:** Satisfy high demand *eScience* initiatives, **Multimedia Collaboration**, Distributed High Performance Computing (**HPC, GRIDs**) for **Earth Sciences, High Energy Physics** (CERN, LHC...), **Bioinformatics, Computational Chemistry, Radio-astronomy, Engineering Planning** (computations, emulations & simulations), **Cultural** (archiving, collaborative digital access & processing) ...
- **Social:** Common culture of R&E community, Virtual Organizations VOs, collaborative research, tele-education, Smoothing the Digital Divides, affordable high bandwidth linkage to the Global R&E community
- **Economic:** Demand aggregators: University & school staff, students, researchers. Consolidation & control of diverse public expenditures. Promotion of Information Society (e-Government, e-Business, e-Health). Stimulation of technological & telecom markets → Competitiveness

Major Objectives for R & E Networks

- Provide scientific research and education institutions with reliable means of communication in order to facilitate ease of cooperation and coordination
- Strengthen the notion of partnership and encourage joint scientific research among communities.
- Minimize cost of research by using diversified academic and technical resources to be made available for use on the network with no need for duplicating investment.
- The fact that students, teaching staff, and researchers use such dedicated networks would eventually uplift efficiency and productivity and would boost the concept of creativity and innovation.

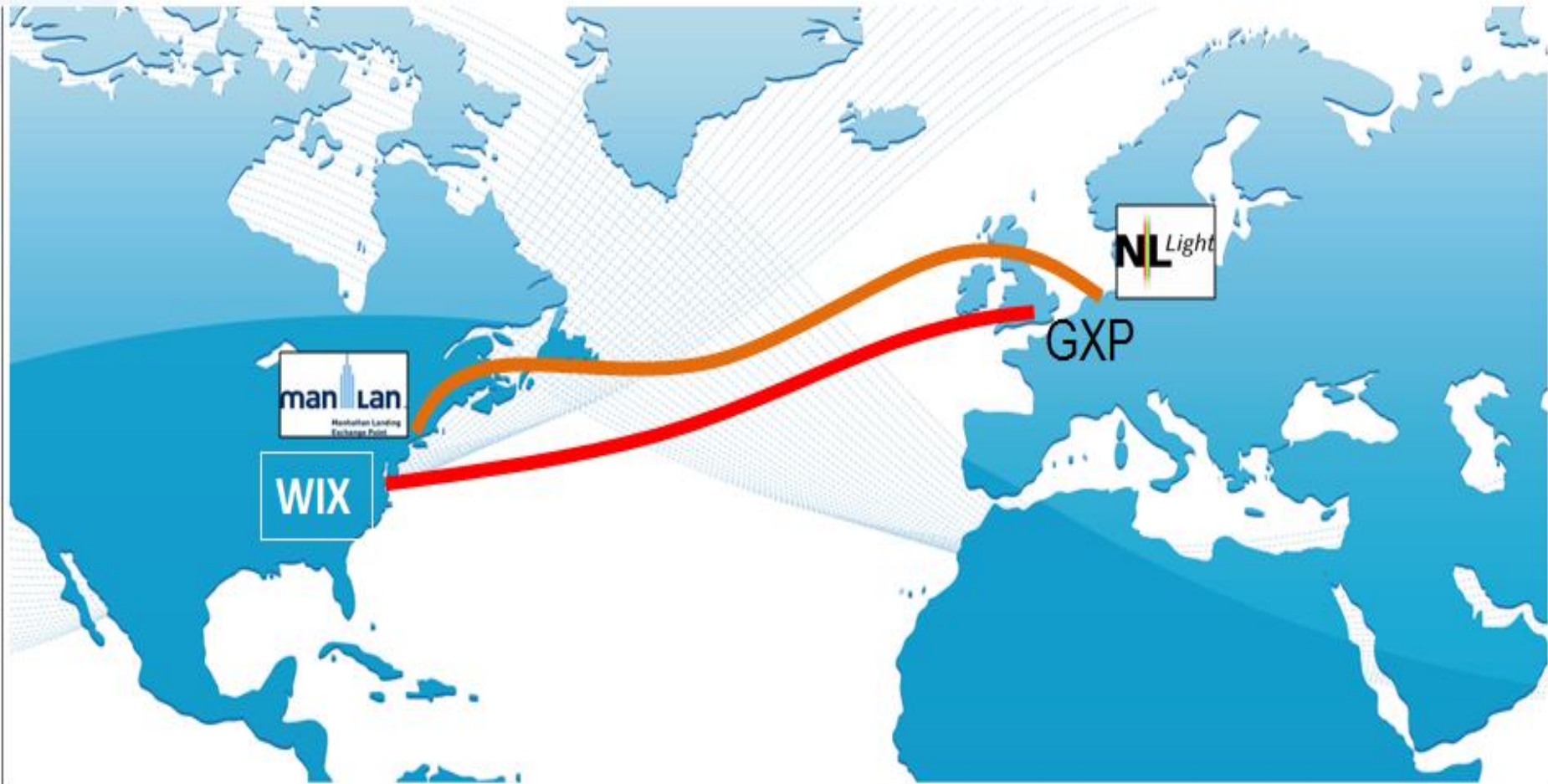
NRENs: Major Services

- Unified connectivity to all research and education institutions to provide country-wide standard communication facilities and capabilities to faculty, researchers, students, and staff, leading to better sharing of resources, information, data, knowledge and expertise.
- Consolidated Internet services, with the NREN acting as an ISP to universities and research institutions. Available statistics in some countries have shown that savings can go up to 40% on access costs, while enabling common access policies and configurations at the national level.
- Connectivity to regional research networks, providing opportunities for joint research collaboration and online education initiatives.
- Access to content, common repositories, and library resources of all universities with a unified subscription to all journals and periodicals for all Universities and research centers.

NRENs: Major Services *(continued)*

- Video conferencing services, media streaming, IP telephony, access federations, and wireless roaming for the purpose of facilitating communications, exchanges of lectures, and coordination of meetings, training and conferences between all users in universities and institutes.
- Consolidated agreements with software vendors on behalf of all Universities for licensing, with savings reaching up to 50% in some cases.
- Common caching, filtering and anti-spam and anti-virus protection services provided by NRENs to all connected institutions.
- Furthermore, an NREN can be eligible to create and manage a national Internet Exchange depending on the regulations of the Country, and provide domain name registry services and networking consultancy.

ANA-200G : GNA pathfinder – production ready Q4 2014



Welcome to the Case for NRENs portal

A pool of resources to assist national and regional R&E networks (NRENs and RRENs) 'make a case' towards their users, funders and partners.

A toolkit of guidance materials to support in particular new and emerging NRENs.

[Find out how to use and contribute to this portal](#)

Get in touch with NREN mentors in your region

If you are a new NREN or about to start up and need advice and guidance, R&E networking representatives in your region are available to assist and mentor you:

- North Africa & Middle East: [Yousef Torman](#) (ASREN)
- West & Central Africa: [Omo Oaiya](#) (WACREN)
- Eastern and Southern Africa: [Dr Pascal Hobu](#) (UbuntuNet Alliance)
- Asia-Pacific: [Dr ByungKyu Kim](#) (TEIN*CC); [Markus Buchhorn](#) (APAN)
- Central Asia: [Askar Kutanov](#) (CAREN)
- Caribbean: [Colleen Wint](#) (CKLN)
- Latin America: [Florencio Utreras](#) (RedCLARA)

NRENs are essential in providing advanced ICT services to the research and education communities. Whilst they are well established in [Europe](#), countries in other parts of the world **face difficult challenges persuading stakeholders of the inherent value in operating an NREN.**

There is **no one-size-fits-all model for a successful NREN.** However, many share similar challenges and can benefit from being part of a **learning and sharing community.**

Affiliations

The portal was developed in response to demand from a number of regional networks where NRENs are starting up to share global experiences and best practice.



About us



NREN Case Review Group

Members of the Review Group that compiled this portal include veteran R&E networking professionals and representatives of the regional network organisations from outside Europe.

[Find out more.](#)

Latest contributions

Feasibility Study for a UN Technology Bank for the Least Developed Countries

Proposal submitted by an expert panel to the UN in Sept 2015, which outlines the role of NRENs in facilitating a Technology Bank for LDCs.

[Download the PDF](#)

Cookbook for ZAMREN applicants

Guidelines to assess the ICT maturity level of institutions applying to join ZAMREN, applicable also to other emerging NRENs.

[Download the PDF](#)

Implementing NRENs in landlocked African countries

Challenges and critical success factors in setting up

Regional Efforts,

- **PAN Arab Network, 2005**
 - Initiated by MoICT of Jordan to study the feasibility of using the power distribution grid network to build a PAN Arab network. The study was sent to the League of Arab States.....
- **Rome Declaration 2006**
 - The Arab MED NREN managers signed a declaration in Rome to work on establishing a consortium to take the responsibility of creating an Arab Med Network...
- **NAP, the Network Access Points 2007**
 - A business initiative to build Internet exchange points for the Arab region....
- **CAMREN 200?**
 - Was proposed as an action for the Rome Declaration....



Launched in Cairo
December 2010,
Under the
Patronage of
HE Amro Moussa,
Secretary General
League of Arab
States

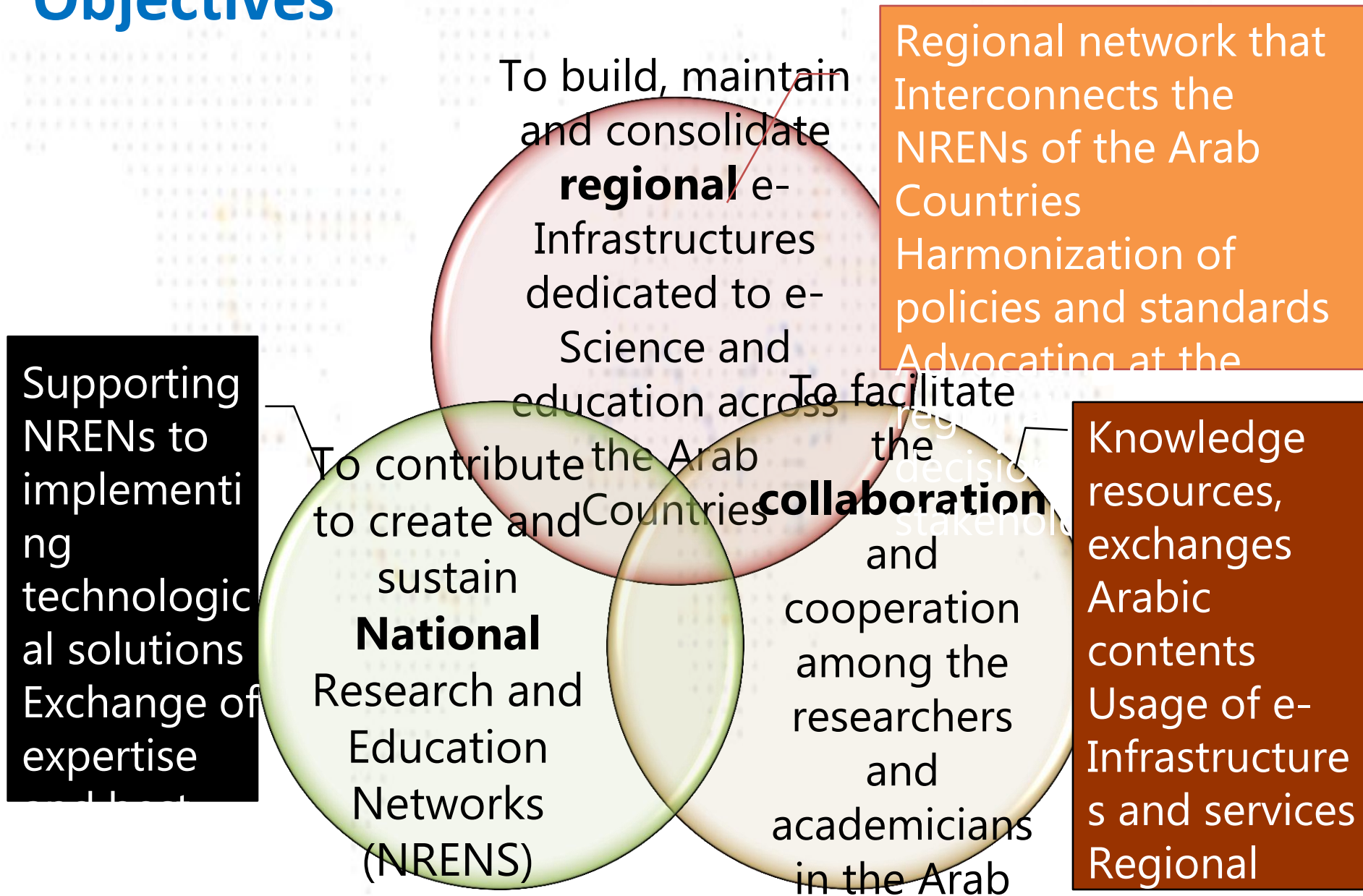
- Endorsed by League of Arab States
- Chaired by HE Secretary general of League of Arab States
- Officially Registered in Dusseldorf Germany as non for profit company GmbH in June 2011



A legal non for profit organization with Arab NRENs as shareholders for promoting world-class Pan-Arab e-Infrastructures and E-services for the R&E communities to boost Scientific Research and regional Cooperation

- **Vision Statement:** Pan-Arab collaborative research and education projects and activities, contribute to boost the scientific research, innovation and education levels in the Arab countries by uplifting efficiency and productivity of research and education communities.
- **Mission statement:** To implement, manage and extend sustainable Pan-Arab e-Infrastructures dedicated for the Research and Education communities and to boost scientific research and cooperation in member countries through the provision of world-class e-Infrastructures and E-services.

Objectives



NREN Status – Arab World - 2011

Existing Arab NRENs	
Morocco	CNRST-MARWAN
Algeria	CERIST - ARN
Tunisia	CCK (RNU)
Egypt	EUN
Sudan	SudREN
Somalia	SomaliREN
Jordan	JUNet
Palestine	PalREN
UAE	Ankabut

Starting (Planned) NRENs	
Lebanon	CNRS??
Oman	TRC
Qatar	Qatar Foundation
Syria	SHERN, HIAST

No NREN, No Information	
KSA	KACST – KAUST?
Bahrain	
Iraq	
Libya	
Kuwait	
Mauritania	
Djibouti	
Yemen	
Comoros	

NREN Status – Arab World - 2015

Existing Arab NRENs	
Morocco	CNRST-MARWAN
Algeria	CERIST - ARN
Tunisia	CCK - RNU
Egypt	EUN
Sudan	SudREN
Somalia	SomaliREN
Jordan	JUNet
Palestine	PalREN
UAE	Ankabut
Oman	OMREN
Qatar	QREN

Starting (Planned) NRENs	
Lebanon	CNRS & MOICT
Bahrain	University of Bahrain
Syria	SHERN, HIAST ??
Iraq	MOHE
KSA	KACST - ISU
Libya	MOHE
Yemen	YCIT-HE

No NREN, No Information	
Kuwait	KITS and Kuwait University
Mauritania	
Djibouti	
Comoros	

Evolution of ASREN's Region



Shareholders Progress

Current Shareholders



CNRST



مجموعة منظمات
Talal Abu-Ghazaleh Organization



SudREN



In the Process



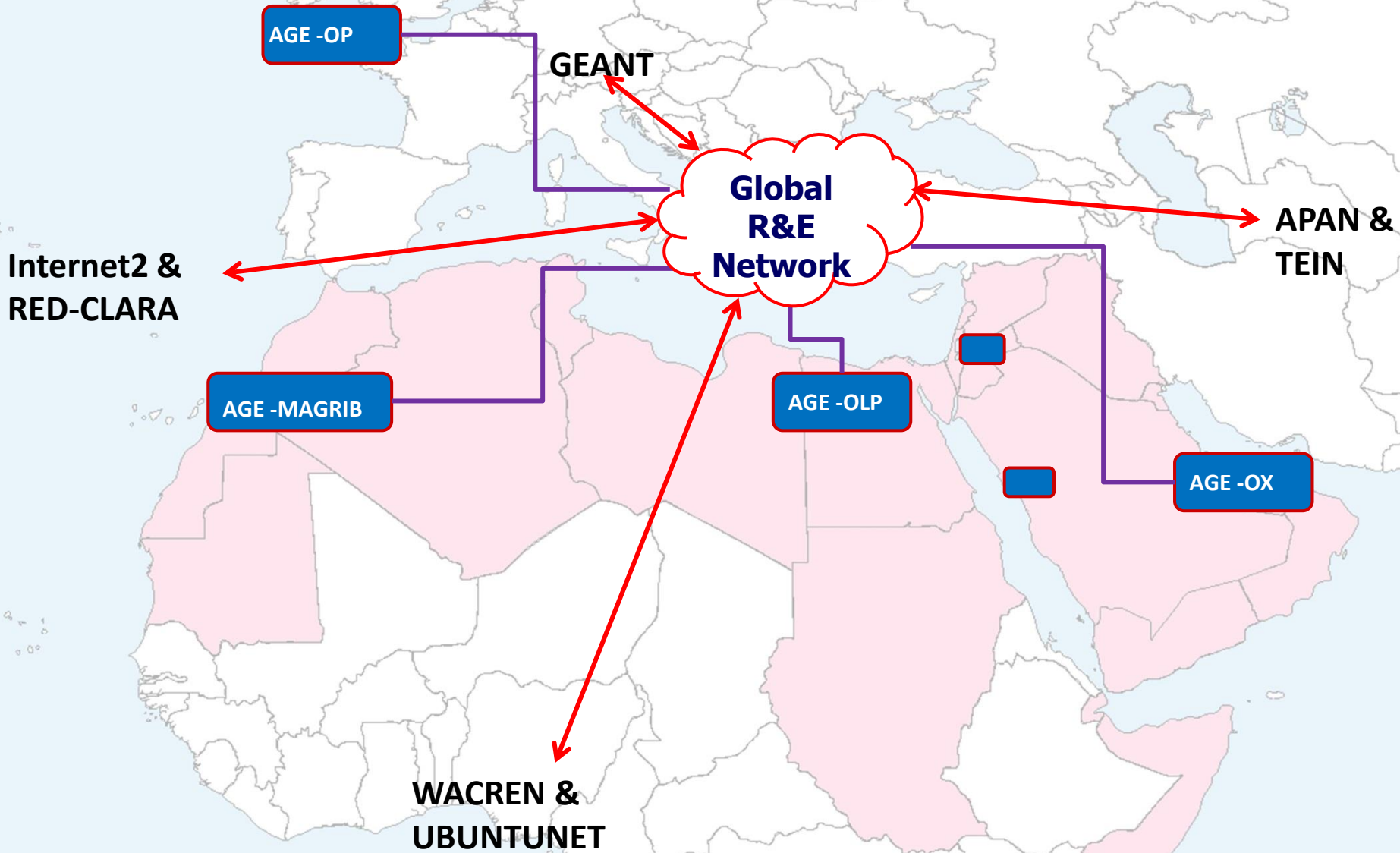
Expression of Interest

Qatar
Lebanon
Oman
Bahrain
Yemen
Libya

Shareholders Update

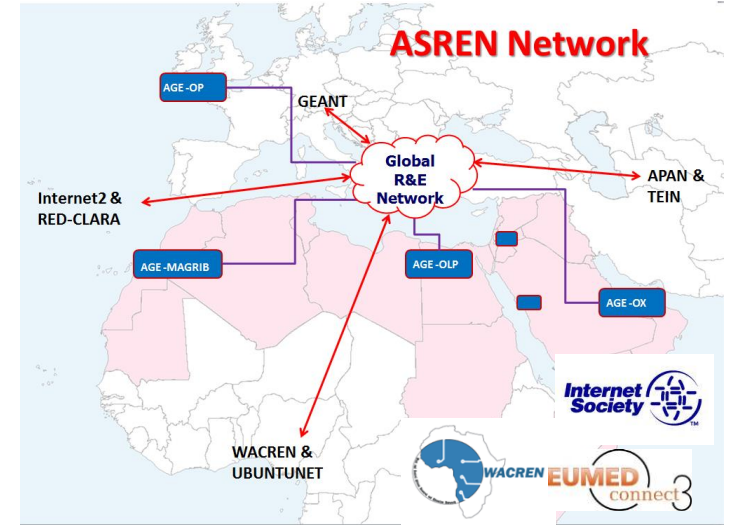
<http://www.asrenorg.net/about/shareholders.html>

ASREN Network



AGE - OP

- Arabian Global Educational Open PoP
- Installed and operational at London Telicity in cooperation with GEANT and WACREN
- Operational & ready to interconnect
- Operations by ASREN and GEANT
- STM1 Connection to Jordan has been operated.
- Lebanon is now connected to this PoP
- More to come



AGE-OX

- **Arabian Global Educational Open Exchange (AGE-OX) to open in Fujairah, United Arab Emirates** led by national network Ankabut in Fujairah
- 10G connectivity to Internet2 in Singapore and future links to Internet2 in Europe/Americas to support US Campus & Research collaborations across the Middle East



NEW YORK UNIVERSITY



ankabut
عنكبوت

Arabian Global Educational
Open Exchange (AGE-OX)



What is eduroam?

eduroam (**education roaming**) is the secure, world-wide roaming access service developed for the international research and education community.

Having started in Europe, eduroam has gained momentum throughout the research and education community and is now available in 71 territories.



Advisories

- > 004
RADIUS Attribute Issues
- > 003
Cipher suite selection for eduroam
- > 002
Internationalised domain names for eduroam realms
- > 001
Do not use web logins for eduroam

News

- > 29 January 2013
New eduroam CAT eases user configuration and admin support
- > 18 December 2012
GeGC first term ends in period of growth for eduroam

Implementation in Morocco, KSA, Qatar, UAE,
Pilots in Egypt, Tunisia, Jordan, Oman, Sudan and Algeria



ASREN IdP

- ASREN IdP Identity Provider is a SAML standard-based service powered by Shibboleth
- Allows the use of a single identity to sign-in into secure websites, Science Gateways ...
- A member of Grid Identity Pool (GrIDP) federation and currently authenticates the users of several Service Providers

A screenshot of the ASREN IdP website. At the top, there is a navigation bar with links for 'About', 'Service Providers', 'Register', and 'Log-in'. Below the navigation bar is a large banner image showing a network of glowing blue person icons connected by lines, with a hand pointing at one of the icons. Underneath the banner, there is a section titled '>> About IDP Public' with a sub-header 'SELECT YOUR IDENTITY FEDERATION'. Below this, there are two rows of buttons. The first row has a 'Catch-all' button with a globe icon, a 'GrIDP-test' button, and a 'GrIDP' button with a lock icon. The second row has a 'Catch-all' button with a globe icon, a 'GrIDP' button, and a 'GrIDP' button with a lock icon. This second row is highlighted with a red border. At the bottom, there is a 'Not Sure? Click Here' button with a large blue arrow pointing right.

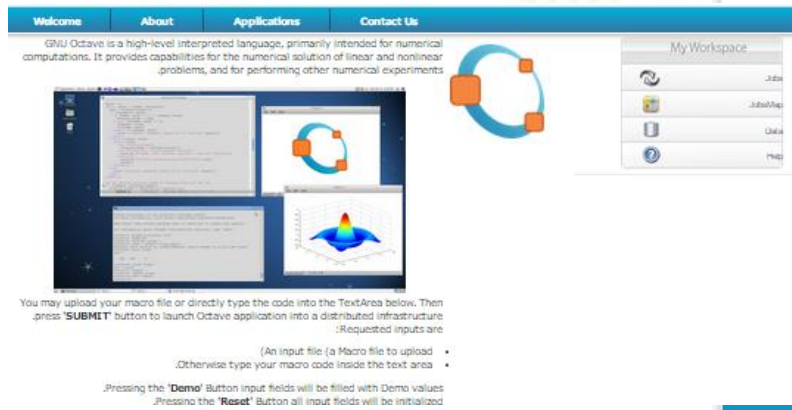
<https://idp.asrenorg.net/>

Thanks to the CHAIN-REDS Project

ASREN SGW provides a set of tools, applications, and data that is integrated via a portal with graphical user interface, that is further customized to meet the needs of a specific community.



The screenshot shows the ASREN Science Gateway portal. At the top, there is a navigation bar with links for 'Welcome', 'About', 'Applications', and 'Contact Us', along with 'Register' and 'Sign In' buttons. Below the navigation bar, the main content area features a carousel of four circular icons representing different scientific fields: 'Chemistry' (flasks), 'Mathematics' (gears), 'Environment' (sunflower), and 'Engineering' (lightbulb). A 'Download' button is visible over the 'Mathematics' icon, with a 'View original...' link below it. The bottom of the page contains logos for ASREN, Consortium GARR, e-chain REDS, INFN, and the Arab World Scientific Association, along with the text 'Service provider of ASREN' and 'info@asrenorg.net'. A footer note mentions 'Powered By Jiferay | Implemented with the Catania SG Framework'.



This screenshot shows the GNU Octave application interface. It features a 'My Workspace' panel on the right with icons for 'JEDI', 'JediMag', 'Data', and 'Plot'. The main area contains a code editor with Octave code and a plot of a 3D surface. Below the code editor, there are instructions for using the application:

You may upload your macro file or directly type the code into the TextArea below. Then .press 'SUBMIT' button to launch Octave application into a distributed infrastructure
 .Requested inputs are

- (An input file (a Macro file to upload
- .Otherwise type your macro code inside the text area

.Pressing the 'Demo' button input fields will be filled with Demo values
 .Pressing the 'Reset' button all input fields will be initialized

Thanks to the CHAIN-REDS Project

<https://sgw.asrenorg.net/>

SOME OF THE APPLICATIONS AVAILABLE

COMPUTER SCIENCE AND MATHEMATICS

Sonification



Sonification is the use of non-speech audio to convey information or perceptualise data. Auditory perception has advantages in temporal, amplitude, and frequency resolution that open possibilities as an alternative or complement to visualization techniques.

Octave2



Octave is a high-level interpreted language, primarily intended for numerical computations. It provides capabilities for the numerical solution of linear and nonlinear problems, and for performing other numerical experiments.

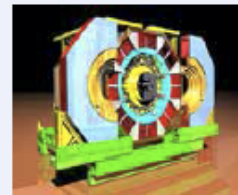
R



R is a language and environment for statistical computing and graphics.

HIGH-ENERGY PHYSICS

BESIII



The BESIII experiment is to study basic elements made of matter, interaction among elements and matter, basic rules of particles, etc.

LIFE SCIENCES

GROMACS



GROMACS is a versatile package to perform molecular dynamics, i.e simulate the Newtonian equations of motion for systems with hundreds to millions of particles.

OTHERS

ASTRA



The ASTRA project aims at reconstructing the sound or timbre of ancient instruments (not existing anymore) using archaeological data as fragments from excavations, written descriptions, pictures, etc. (www.astraproject.org)

Other SGW

Morocco and Algeria



MaGrid
La Grille de Calcul Marocaine

Ar En Fr Sign In

Moroccan Grid Science Gateway

Home Applications

Welcome to the MaGrid Science Gateway

By definition a **Science Gateway** is a "community-developed set of tools, applications, and data that is integrated via a portal or a suite of applications, usually in a graphical user interface, that is further customized to meet the needs of a specific community".

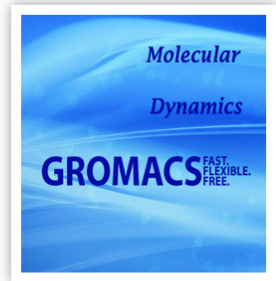
How To Access

The access to the MaGrid Science Gateway requires federated credentials issued by an Identity Provider.

If the organisation you belong to has an Identity Provider, click on the link "Sign In" which appears in the top right corner of the page.

Otherwise, you can get federated credentials registering to [the MaGrid Catch All Identity Provider](#) which belongs to the eduIDM federation.

When registration procedure will be completed, you can sign in again and select eduIDM as your Identity Federation and then MaGrid Catch-All IDP as your Identity Provider.



[Contact Us](#) | [Privacy Policy](#) | [Terms of Use](#)

Powered By Liferay
Implemented with Catania SG Framework
This is a Service Provider of:
 



Algerian Research Network

Home Applications DZ e-Science Grid About My Data

Welcome to DZ e-Science GRID Science Gateway

DZ e-Science GRID Science Gateway is a computational web portal that enables scientists to run scientific simulations, data analysis, and visualization through their web browsers.

A science gateway on DZ e-Science Grid is how to deploy scientific applications rapidly on computational resources and expose these applications as web services to scientists.



Revealing and Harvesting Knowledge

e-AGE 2015

7-8 December 2015, Casablanca, Morocco

[Click here to find out more](#)

EUMEDCONNECT3 provides a high-capacity dedicated Internet network for the research and education communities across the southern and eastern Mediterranean region, enabling scientists and academics to collaborate and engage in innovative, data-intensive international projects.

With its direct links to GÉANT, the pan-European R&E network, EUMEDCONNECT3 provides access to over 50 million users at over 10,000 research and education establishments across Europe. [Click here](#) to find out more about the project.

Quick Links

Site links

[About the Project](#)
[Partner Contact Details](#)
[User Applications](#)
[User Support](#)

External web links

[GÉANT](#)
[GÉANT Project](#)
[TEIN](#)
[EUMEDCONNECT2](#)
[CAREN](#)

EUMEDCONNECT3 Events

OSSCOM 2015 - International Conference on Open Source Software Computing

International Conference on Open Source Software Computing (OSSCOM 2015) is part of the Open Source Software Communities and Rejuvenation of Technical Education and Innovation Project, funded by the European Commission.

EUMEDCONNECT3 News

27 October | 2015

"In The Field with research and education networks" blog is now live!

The blog was developed by Jane Gifford (AARNet) and launched as part of the Global PR network activities.



- **AfricaConnect2 will provide connectivity to Africa in 3 clusters:**
 - Cluster 1: the current AfricaConnect countries in operation in Eastern and Southern Africa . This Cluster is **directly** contracted between **UbuntuNet Alliance** and the EC.
 - Cluster 2: newly ready countries in West and Central Africa organised under **WACREN** with support from GÉANT
 - Cluster 3: North African countries organised under **ASREN** with support from GÉANT

- **EUMEDCONNECT3 will be extended to end Dec 2016**

AfricaConnect2

Connecting the research and education communities across Africa

[Find out more](#)



AfricaConnect2 supports the development of high-capacity internet networks for research and education across Africa.

It builds on existing networks in Eastern & Southern Africa and North Africa and will extend connectivity into West and Central Africa.

By collaborating with AfricaConnect2, the pan-European GÉANT network strengthens Europe's links with the African continent and provides African research and education communities with a gateway for global collaborations.

"I look forward to further e-developments for research and education across Africa and trust AfricaConnect2 will be able to enforce these positive changes."

Yousef Torman
Co-managing
Director, ASREN



Quick Links

[GÉANT](#)
[GÉANT project](#)
[TEIN](#)

[EUMEDCONNECT3](#)
[CAREN](#)
[EaPConnect](#)

AfricaConnect Events

UbuntuNet-Connect 2015

Beyond connectivity: the road to NREN maturity.
PRESENTATIONS NOW AVAILABLE!

Date: 19 November 2015 to 20 November 2015

Location: Maputo, Mozambique



Magic

Middleware for collaborative Applications
and Global virtual Communities



General Objective

The Middleware for collaborative Applications and Global virtual Communities (MAGIC) Project seeks to establish a set of agreements for Europe, and other participating World Regions, aiming at consolidating and completing the building blocks of middleware necessary for the establishment of a marketplace of services and real-time applications for international and inter-continental research groups which facilitates mobility and the work of global science communities.

H2020-INFRA SUPP-2014-2



Magic

Middleware for collaborative Applications
and Global virtual Communities

Partners

- RedCLARA , Uruguay, (Coordinator)
- GÉANT, Netherlands and UK
- RNP, Brazil
- RENATA, Colombia
- REUNA, Chile
- CEDIA, Ecuador
- CUDI, Mexico
- UbuntuNet Alliance, Malawi
- WACREN, Ghana
- ASREN , Jordan
- CESNET, Czech Republic
- GRNET, Greece
- SURFnet, The Netherlands
- CSIR, South Africa
- RENATER, France
- NIIFI, Hungary
- CKLN, Grenada
- NITC, Kyrgystan
- TEIN*CC, Korea



Sixth International Platform on Integrating
Arab e-infrastructure in a Global Environment, e-AGE 2016

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A wide-angle photograph of a modern city skyline with several tall skyscrapers and a marina with many white yachts in the foreground. The sky is blue with some light clouds.

e-AGE 2016

Ubiquity and Cohesiveness of e-Infrastructures

1 - 2 December 2016, Beirut, Lebanon

[Click here to find out more](#)





Thank You

Yousef Torman

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